CS 505-2

Dual

Operating Instructions

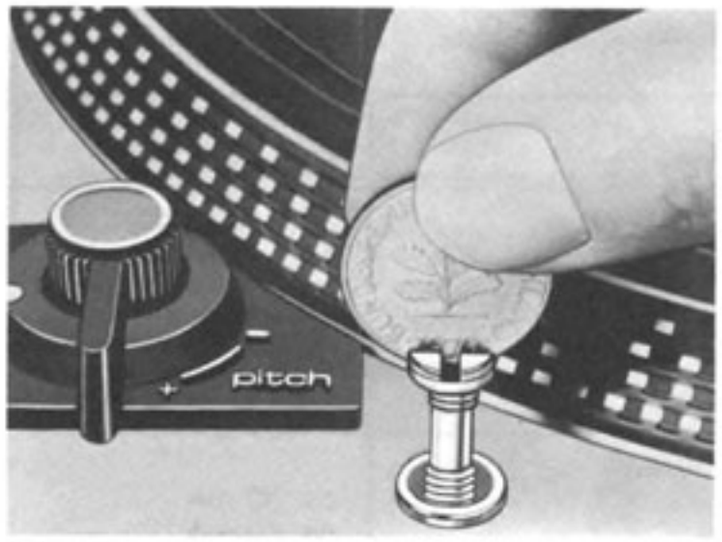


Fig. 1

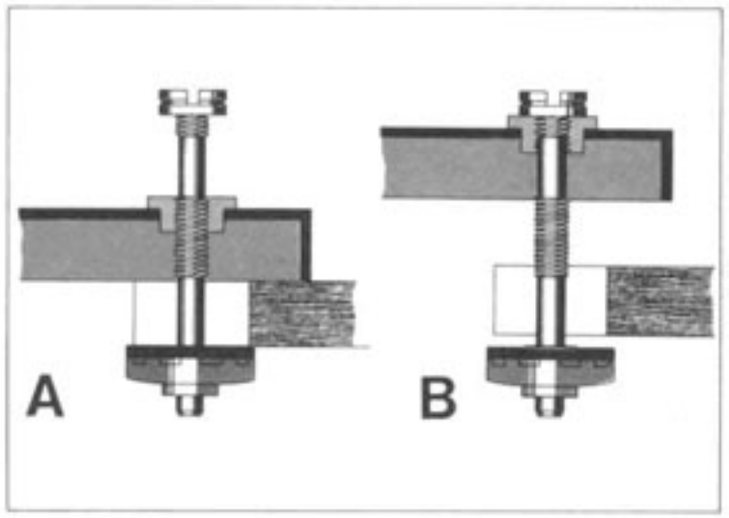


Fig. 2

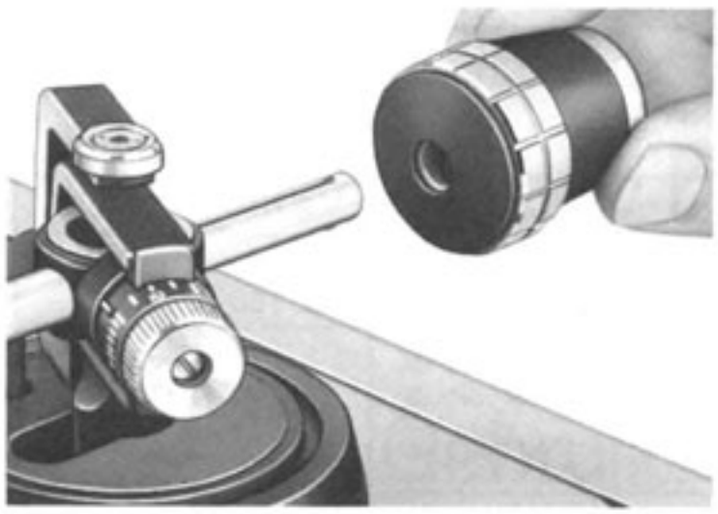


Fig. 3

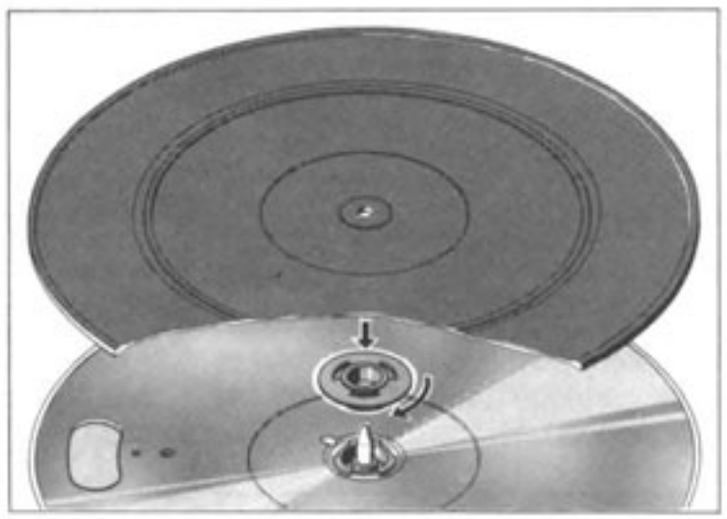


Fig. 4

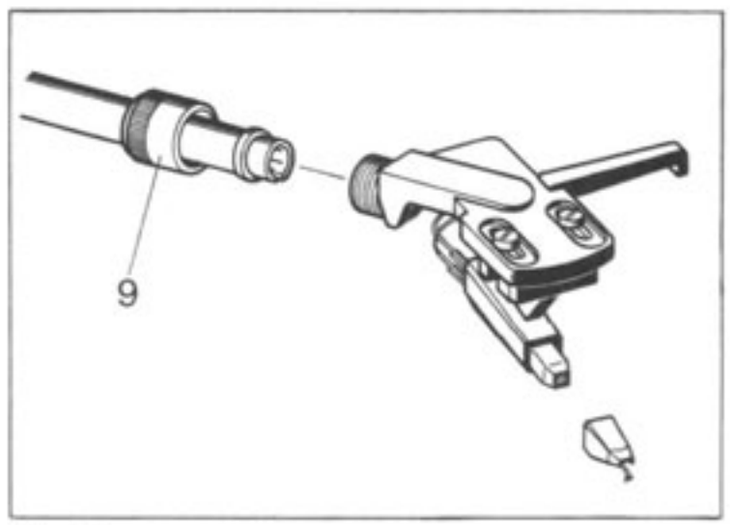


Fig. 5

Operating features

1 Cover
2 Hinge
3 Tonearm counterbalance
4 Alignment screw for tonearm height
5 Stylus pressure setting
6 Anti-skating setting
7 Tonearm post with tonearm rest
8 Cueing control
9 Screw to secure head shell
10 Securing screw for platter
11 Transport locking screw
12 Pitch control
13 Platter speed setting

Preparation for play

Remove the unit and all accessories from the shipping carton. Please keep all packing elements in case you should need them for later transport.
Remove the safety screw which, in some cases, is additionally mounted on the left rear side.
To release the transport locking screw (fig. 1) turn these in clockwise direction until they slide down approximately 15 mm and then tighten these by turning them further in clockwise direction. In this way, the record player is spring-mounted in playing position (fig. 2/B).
Turn the tonearm counterweight **3** on the rear end of the tonearm (Fig. 3).
Push the cover **1** parallel to the position of the hinges **2** so that it fits snugly (opening angle approx. 60°). In this position, the cover can be removed at any time.

Balancing the tonearm and setting the tracking and antiskating force

1. Set the tracking force **5** and anti-skating **6** controls to "zero" (with the pointer L/H). Remove the stylus guard.
2. Unlock the tonearm and move it over the tonearm rest. Place the cue-control lever **8** in ▼ position. Hold the tonearm whilst doing so.
3. Balance the tonearm precisely by turning the counter-balance. The tonearm is balanced precisely when it pivots freely.
4. Set the required tracking force for the cartridge used by turning the dial **5**. The tracking force for series cartridges ULM 65 = 15 mN = dial position 1.5.
   Note: If a different cartridge is used, refer to the separate cartridge data sheet for the necessary setting values.

Set the appropriate value of the antiskating device **6** on the basis of the following table:
○ Setting for spherical styli.
⬭ Setting for biradial (elliptical) styli.

Tracking force		**Antiskating setting**	
		"Dry" playing	"Wet" playing
	1 = 10 mN	1	0.7
	1.25 = 12.5 mN	1.25	0.8
ULM 65 →	1.5 = 15 mN	1.5	1.0
	2 = 20 mN	2	1.3
	2.5 = 25 mN	2.5	1.8
	3 = 30 mN	3	2,1

The antiskating device is switched off when the pointer is set to the left.

Connection to the AC supply

Depending upon the voltage rating on the nameplate, the turntable is set either to a voltage of 220–240 V/50 or 60 Hz or to 110–125 V/50 or 60 Hz.
The unit may also be connected to the auxiliary power outlets of certain amplifiers.

Connection to amplifier or receiver

Connect the audio cables to the phono-magnetic inputs of the amplifier or receiver (black RCA-type plug = right channel, white RCA-type plug = left channel).
Connect the single ground wire fitted with a terminal clip to the ground connection on the rear of the amplifier.
If your stereo amplifier or receiver is equipped with 5-pole DIN phono sockets, a special phono adapter (Dual part nr. 262 483) is required for connection of your turntable. This adapter cable can be obtained as optional accessory from authorized Dual dealers.

Start, cueing control

Select the required platter speed 33 or 45 rpm with the knob **13**, remove the stylus protection cap, release the tonearm and position it over the lead-in groove of the record. The tonearm is now damped with the cue control lever **8**. Bring the cue control lever in to position ▼ and lower carefully onto the record.
The tonearm can be raised at any arbitrary position – also for brief interruptions in playing – by means of the cue control lever (cue control lever in position ▼). The platter continues to turn.
With the cueing control in ▼ position, the height of the stylus above the record can be varied by approximately 6 mm by turning the adjusting screw **4**.

Stop

The tonearm is raised automatically at the end of the record and the device is switched off. You can also switch off the turntable by setting the cue control lever in position ▼ and then setting the tonearm back onto the tonearm rest.
After you have finished using your turntable, we recommend that you set the tonearm on the rest, lock it in position and put the stylus protection cap back over the stylus.

Pitch control

Each of the two standard speeds (33⅓ and 45 rpm) can be varied with the pitch control. Adjustment is made with pitch control knob **12**. Adjustment range at 33⅓ rpm approx. 1 semitone (6%).
The pitch control maintains the nominal speed and provides for individual control of tempi and pitch of reproduction, for example, when the pitch of recorded music is to match a live musical instrument, or when a record passage is to match the length of a motion picture scene.
The selected turntable speed can be checked with the aid of the stroboscope on the outer edge of the turntable. If this is illuminated with a light operating on alternating current, then the scale of circular dots for the required turntable speed appears to stand still – although the turntable is moving – if the speed of the turntable is accurately adjusted.
1st stroboscope ring = 45 rpm for 50 Hz mains frequency
2nd stroboscope ring = 45 rpm for 60 Hz mains frequency
3rd stroboscope ring = 33 rpm for 50 Hz mains frequency
4th stroboscope ring = 33 rpm for 60 Hz mains frequency
succession from up to down.

Changing and fitting the cartridge

A ½ inch cartridge with a net weight of 2.5 . . . 8 g can be fitted in place of the cartridge already fitted or on units without a cartridge.
The Dual range of accessories offers appropriate cartridges.
Loosen screw **9** and remove the head shell by pulling it forward. Remove the cartridge by loosening the two securing screws. Pull off the connection wire on the cartridge. Attach the new cartridge, at first loosely, on the head shell. Secure the connection wires with the connection pin on the cartridge.

Red R right channel	blue GL left channel ground
Green RG right channel ground	white L left channel

Replace the head shell on the tonearm and secure screw **9**. Cut out the assembly instructions on page 18 of the operation instructions and place them in between the tonearm bearing and the cartridge. Now adjust the cartridge parallel to the head shell so that the stylus is exactly on the line with a clearance of 221 mm.

Stylus

The stylis is subject to natural wear and tear during playing. We therefore recommend regular checks, which should be carried out after at least 300 playing hours in the case of diamond-tipped styli. Your dealer will be happy to do this for you cost-free. Worn out or damaged (chipped) styli damage records. Therefore, only use as replacements the stylus types recommended in the technical data of the cartridge. Other styli often cause audible reductions in quality and increased wear to records. Remove the stylus by pulling it diagonally downwards.
To fit a stylus in, follow the procedure in reverse order (fig. 5).

Removing the platter

The platter is secured by the connection of the central ornamental ring **10**. To remove the platter, press the ring slightly downwards and turn it approximately 60° to the right until it noticeably releases. The platter can now be removed.
To secure the platter, replace the ornamental disc, press it down slightly and turn it approximately 60° to the left.

Replacing the drive belt

In order to replace the drive belt, the platter must be removed (see section "Removing the platter").
Remove the flat belt from the drive pulley and platter pulley and place the new precision flat belt on the belt surface of the platter pulley.
Important! The matt (ground) side must face outwards!
Lift the flat belt (if necessary with a strip of cardboard from the pulley surface and place it over the drive pulley of the motor. Make sure that the flat belt runs within the guide fork without touching.

Later transport

Be sure the tonearm is locked and the stylus guard fixed again. Also, release the transport safety screws turning them counterclockwise, then pull them up and tighten them again by continuing to turn them so as to secure the chassis against the base (fig. 2/A). The tonearm counterweight should be removed.

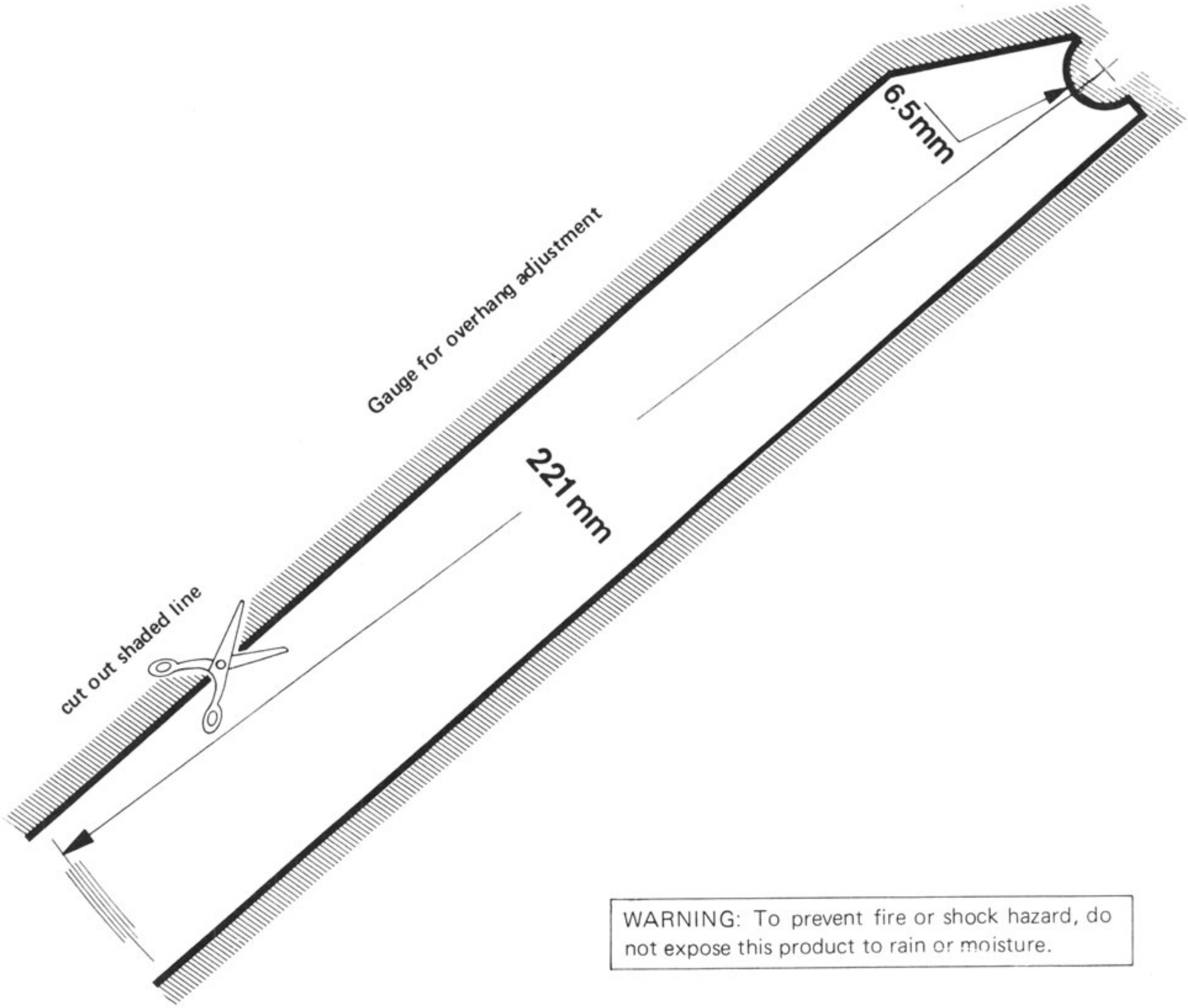
Electrical safety

The unit complies with the International Safety Regulations for radio and related devices (IEC 65) and the EEC guidelines 76/499/EWG.

Technical data

Measured values = typical values
Rumble and wow and flutter values obtained with lacquer foil

Current type Alternating current changeable	50 or 60 Hz
Mains voltages fixed by the producer	220 – 240 or 110 – 125 V
Belt drive Dual 16-pole-synchronous motor	Dual SM 100-1
Power consumption	ca. 8 Watt
Power consumption on 230 V 50 Hz on 115 V 60 Hz	 ca. 30 mA ca. 40 mA
Platter non-magnetic, removable	0,9 kg, 304 mm ∅
Platter speeds	33⅓, 45 U/min.
Pitch control at both platter speeds adjustment range at 33⅓ rpm	 6%
Wow and flutter DIN WRMS	 ± 0,08% ± 0,05%
Signal-to-noise ratio (in accordance with DIN 45500) Rumble unweighted signal-to-noise ratio Rumble weighted signal-to-noise ratio	 47 dB 70 dB
Effective tonearm length	221 mm
Offset angle	24° 30'
Tangential tracking error	0,15°/cm
Cartridge HiFi DIN 45500 red R right channel green RG right channel ground blue GL left channel ground white L left channel	Dual ULM 65 E
Diamond stylus biradial	Dual DN 165 E 18 × 8 µm ⬭
Tracking force	15 mN (10–20 mN)
Frequency range	10 Hz – 25 kHz
Output	3,5 mV/5 cms^{-1}/1 kHz
Compliance horizontal vertical	30 µm/mN 25 µm/mN
Cartridge weight	2,5 g
Total capacitance Tonearm leads and audio-cables	 ca. 160 pF
Note: If a different cartridge is used, refer to the separate cartridge data sheet for the necessary setting values.	



WARNING: To prevent fire or shock hazard, do not expose this product to rain or moisture.

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